

FOREST PRODUCTS LABORATORY † FOREST SERVICE  
U. S. DEPARTMENT OF AGRICULTURE

SMALL SAWMILL IMPROVEMENT  
PRACTICAL POINTERS TO FIELD AGENCIES

BURNING WASTE MATERIAL

Green slabs, edgings, and trims can be burned without a forced draft if such material is in a loose pile. Sawdust, either with slabs and edgings, or separately, usually requires a forced draft. The destruction of waste should occur as fast as it is produced.

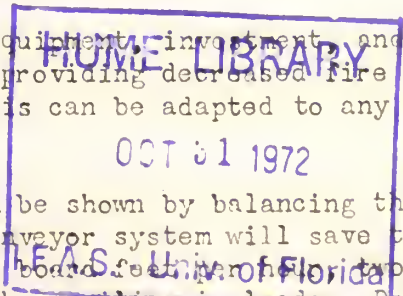
The destruction of accumulated piles of sawdust can be speeded by using a blower powered by a 1-1/2 to 5 horsepower unit. About 25 feet of outlet pipe having a diameter of 8 inches or more permits locating the blower away from fire hazard. A steady, diffused flow of air is effective, a direct and intense draft on the burning zone is not; hence, outlet pipes of relatively large diameter are used, the fans are run at slow speeds, and the air stream is directed to hit the ground at the base of the pile on the windward side. The blower is moved as wind direction changes and as the pile is consumed. Anchoring to skids provides a firm base and ready mobility.

The waste disposal method chosen for use at a small mill should be determined by comparing the capacity and the installation, upkeep, and depreciation costs of the various methods. That requiring a minimum installation cost is to convey the sawdust to the pile with a conveyor chain or a blower, and slabs and edgings by hand labor. One man can keep up with a production rate of 800 board feet per hour if the carry is within 50 feet. Slabs and edgings are picked off the rolls or ground near the rear of the edger on the track side and carried directly away from the mill to the pile. The fire should be at least 40 feet from the tracks, and preferably be located so that prevailing winds blow from the mill to the fire. The work can be lightened or the distance lengthened by installing skids leading to the fire so that waste material can be placed across them and pushed. Slabs will slide by gravity if the slope is one foot vertically to two horizontally. This method is illustrated in a previous paper of this series (.4S2221, Plan No.1, Mimeo.R899-10). With some additional installation cost, slabs and edgings can be conveyed to the fire on a slab car. This raises the one-man capacity to about 1,000 board feet per hour or increases the carry to 100 feet (.4S2221, Plan No.2, Mimeo.R899-10).

An alternative method involving more equipment, investment, and installation cost, but requiring less manpower and providing decreased fire hazard, consists of a conveyor-burner combination. This can be adapted to any rate of production and to considerable distance.

The wisdom of using such equipment can be shown by balancing the yearly cost against the cost of labor saved. A conveyor system will save the labor of at least one man for capacities up to 1,000 board feet per hour, two to three for higher production rates, and permit package piling in loads. Details of the conveyor are given in another paper of this series (.432224, Mimeo.R899-21).

Mimeo. No. R899-22



† Maintained at Madison, Wisconsin in cooperation with the University of Wisconsin

\*See outline in Small Sawmill Improvement Working Plan, March 1930, for explanation of indexing system proposed

The burner should be located at least 70 feet from the mill and so that prevailing winds blow the smoke away from the mill. If forced draft is needed, a small fan type of blower is used. A 20-gage pipe about 8 inches in diameter, preferably housed in a wood casing and sunk below ground level, carries the air from the fan to the burner. The fan can be powered from the saw mandrel or by a separate power unit ranging from 1-1/2 to 5 horsepower. The separate unit permits a draft when the mill is not operating. Various types of outlets are used to diffuse the draft under the burning material.

In a simple burner, the pipe outlet centers the pit. Rocks or fire bricks are loosely heaped to give a base about 4 feet across and a peak 2-1/2 feet high. The overhead conveyor should discharge the refuse on this heap; the required draft results from the air forced through the openings in the pile (fig. 1).

Another relatively inexpensive burner<sup>1</sup> (fig. 2) provides for greater diffusion of the draft. If slabs and edgings are burned, a shield of rocks, laid alongside and over the bricks but leaving the vents unobstructed, insures that the bricks are not displaced by falling pieces. More expensive variants are grates (fig. 3)<sup>1</sup> or perforated piping (fig. 4)<sup>1</sup>. Perforated piping functions well on sawdust, but is less suitable for slabs.

A simple type of enclosure wall is shown in fig. 5. For more permanence the iron pipe posts of fig. 6<sup>1</sup> can be used.

Contributed by  
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<sup>1</sup>Region 2 Construction and Maintenance Handbook, U. S. Forest Service, Denver, Colo.

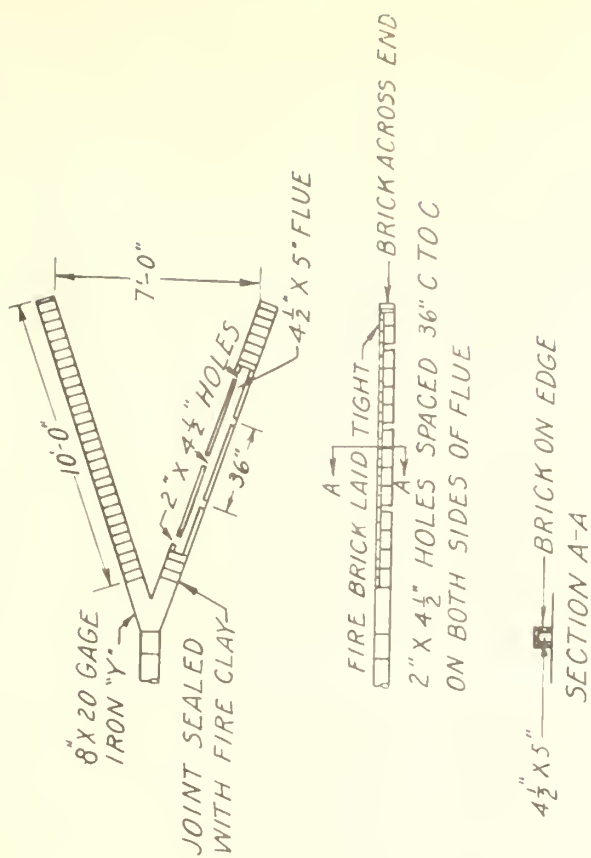


Figure 2.--outlet in Y fire-brick flue.

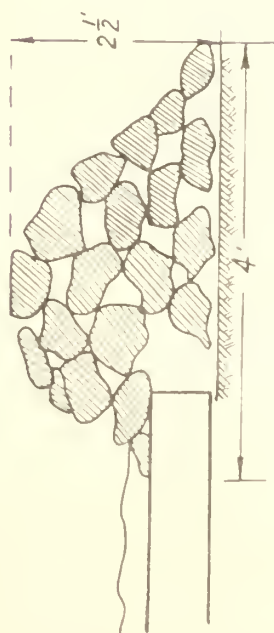


Figure 1.--outlet in rock pile.

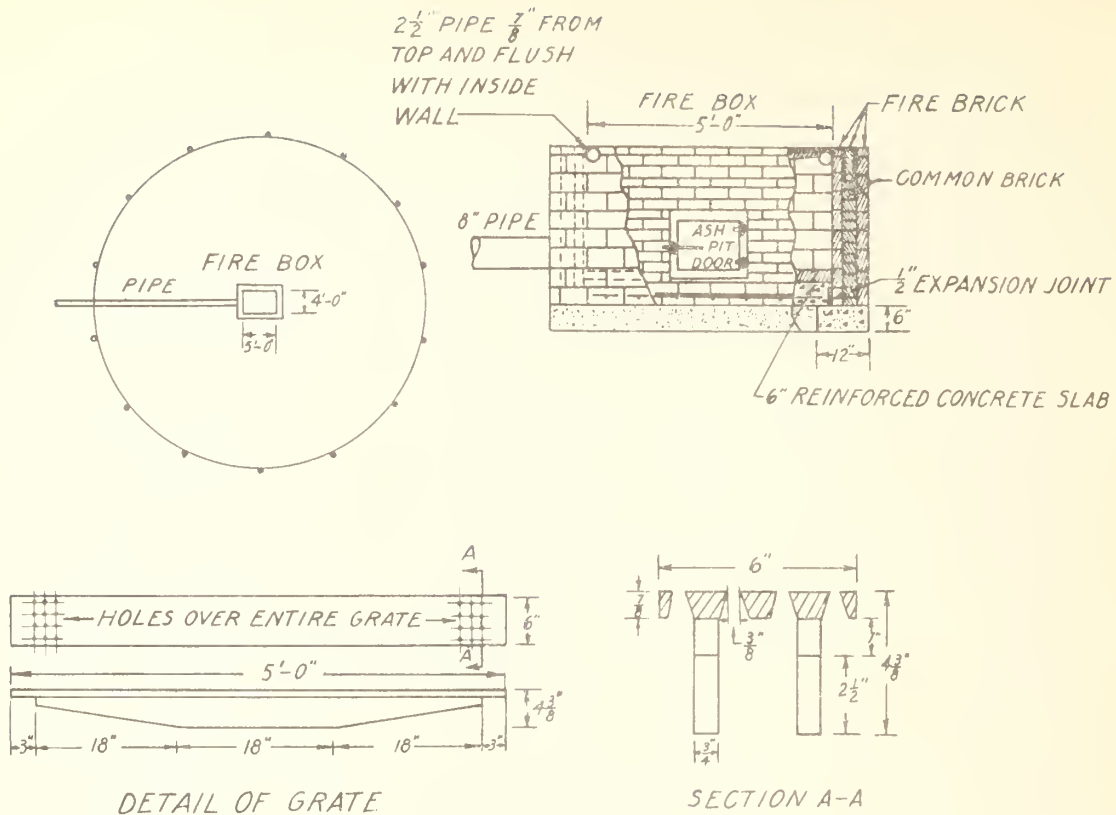


Figure 3.--Outlet in fire box.

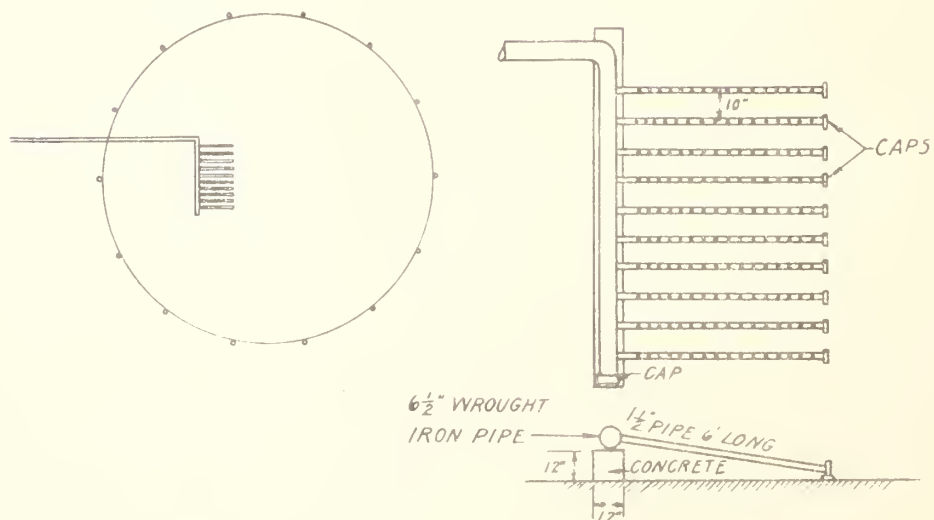


Figure 4.--Outlet in perforated piping.

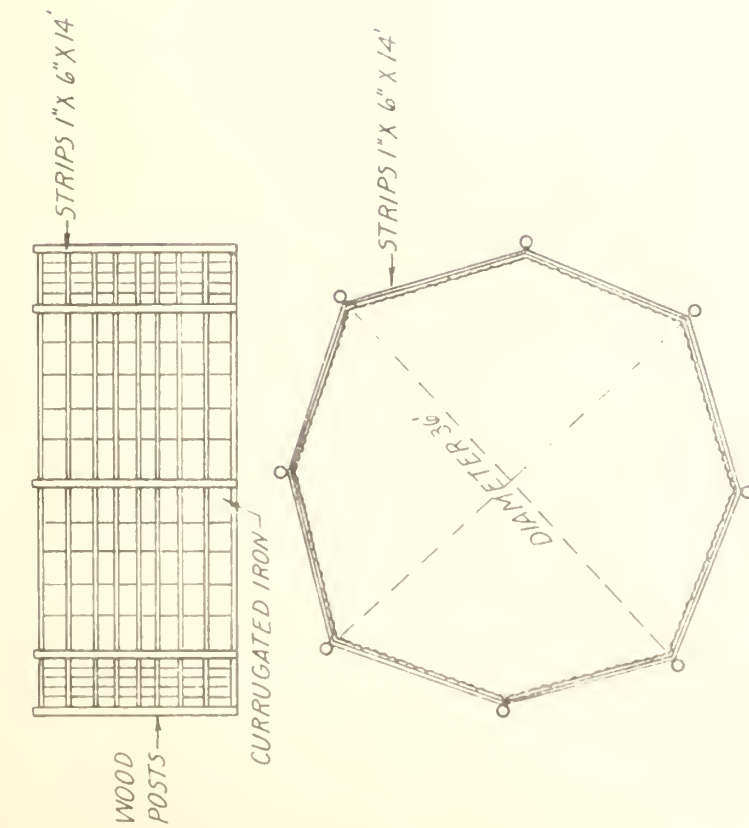


Figure 5. --Wall with wood posts.

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Figure 6. --Wall with iron posts.

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